

Name: \_\_\_\_\_

**Math 10 F&PC**

Date: \_\_\_\_\_

**Ch. 5 Relations and Functions****5.4 - Graphing Data****Learning Outcome:**

Learn to determine the properties of the graphs of relations and functions.

**Recall:** a **function** is a relation in which there is only a single output number for every valid input number. In a set of ordered pairs, the  $x$ -coordinate is called the input number, and the  $y$ -coordinate is called the output number.**Example 1:** For this table of values:

a) Graph the data. Will you join the points? Justify your answer.

b) Does the graph represent a function? Explain?

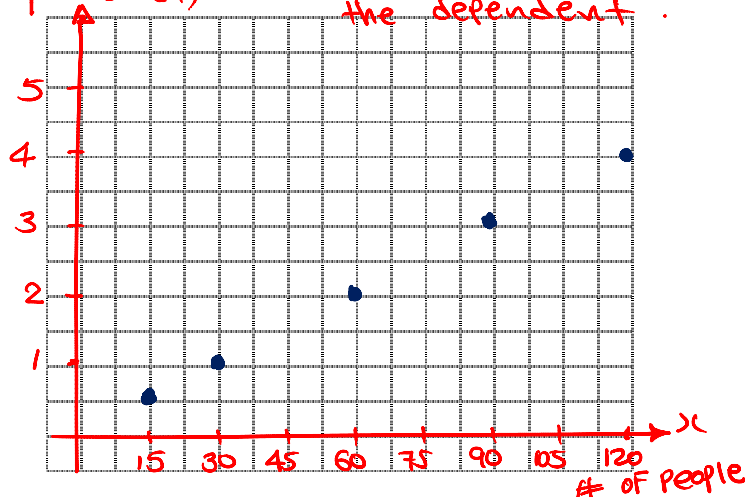
NO - will not join the points.

yes - represent function  
the cost is a function of # of people (n) the independent, (C) is the dependent.

(x) input Number of People, $n$	(y) output Cost, (\$) $C$
15	0.50
30	1.00
60	2.00
90	3.00
120	4.00

independ

dependent

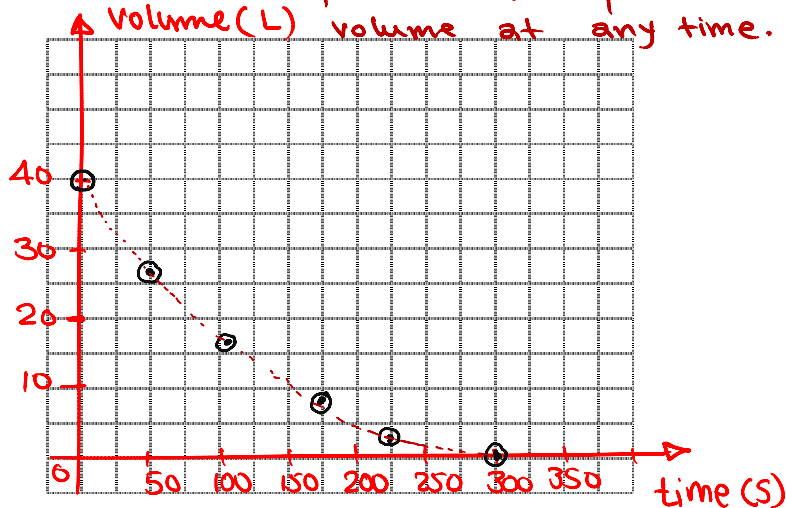
**Example 2:** A bathtub contains 40 L of water. The plug is pulled. The volume of water remaining in the tub is recorded at various intervals.

Graph the data. Show volume as a function of time. Will you join the points?

yes - Points will be joined because you can have any value of the volume at any time.

independent (x) (y) dependent

Time (s)	Volume (L)
0	40.0
55	26.7
105	16.9
170	7.5
225	2.5
300	0.0

Inequality :-
 $\geq$  •  $>$   
 $\leq$  •  $<$ 
 $x \geq 3$  4 1 1 3 4 5

**Example 3:** This table shows the refund,  $r$  dollars, for different numbers of pop cans,  $n$ .

Number of Pop Cans, $n$	Refund, $r$ (\$)
9	0.45
13	0.65
16	0.80
24	1.20
33	1.65

Domain:-

$D$ : is the set of  $x$  values of the Function.

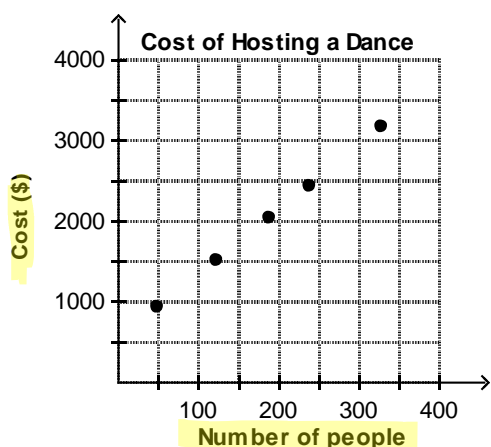
Range:-

$R$ :- is the set of  $y$  values of the Function.

- a) Write the domain and range.  $\{D: 9, 13, 16, 24, 33\}$   
 $\{R: 0.45, 0.65, 0.80, 1.20, 1.65\}$
- b) Suppose you were to graph the data in this table of values. Would you join the points? Justify your answer. No, we will not join the points because the domain ( $D$ :-  $x \in W$ )

$W$  - whole number  
 $R$  = Real number

**Example 4:**

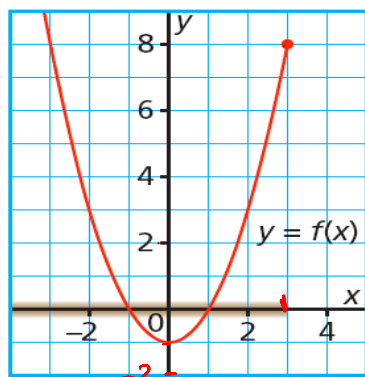


Cost is  $f(n)$

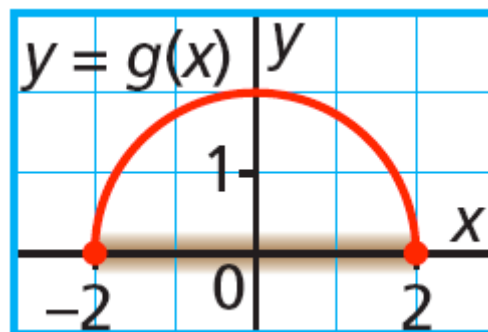
$x \in W$

- a) How can you tell that this graph represents a function?  
the graph represent a Function because there is only one Cost For each # of people.
- b) Explain why the points on this graph are not joined?  
because the data are only valid For whole number of people.

**Example 5:** Determining the Domain and Range of the Graph



$D: x \leq 3$   
 $R: y \geq -1$



$D: -2 \leq x \leq 2$   
 $R: 0 \leq y \leq 1$

Assignment: p. 285 – 286 All